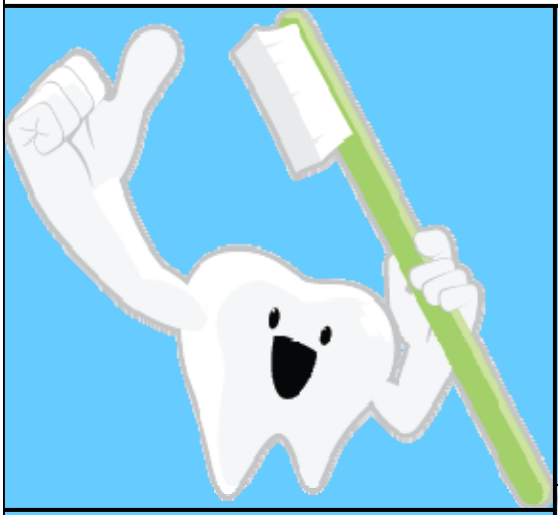
Missouri Preventive Services Program
A Report from the 2012-2013 School Year



Promoting Healthy Smiles through Prevention and Education

Healthy Smiles for a Healthy Life

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Introduction

As stated in Oral Health in America: A Report of the Surgeon General, oral health is essential for general health and quality of life. The consequences of poor oral health are pain, financial and social costs, and complications that affect overall well-being. In children, poor oral health has been linked to missed school as well as problems with speaking, eating, and learning.[1] Tooth decay is the most common chronic childhood disease in children – it is five times more common than asthma.[2]

To address the serious consequences of those oral health needs for children in particular, the Missouri Department of Health and Senior Services (DHSS) created the Missouri Oral Health Preventive Services Program (PSP). The PSP is a free, community-based, systematic approach to population-based prevention of oral disease. The PSP is dedicated to promoting healthy smiles in all Missouri's children (infants to age 18) through oral health education and preventive treatment.

The PSP is managed by the Missouri Oral Health Program within the Office of Primary Care and Rural Health. The program is coordinated by five regional oral health consultants (who are Registered Dental Hygienists) (Appendix 1, map) who assist communities with implementing the PSP in their schools, day care centers, Head Starts, preschools, health clinics, and other settings. DHSS provides educational materials, oral health screening supplies (such as screening forms and disposable mouth mirrors), oral health supplies (toothbrushes, toothpaste, and floss) and fluoride varnish for each PSP event. The PSP also provides online instructions for dental health professionals who perform oral health screenings and training for parents and other volunteers who perform the fluoride varnish application.

It is important to note that the PSP is a community driven program and is only possible through the hard work and enthusiasm of school nurses and others interested in promoting oral health at their institutions. Community volunteers are essential for PSP programs. These local volunteers include the dentists and dental hygienists who perform oral health screenings as well as parents and other volunteers who apply fluoride varnish.

This report highlights the accomplishments of the 2012-2013 school year as well as important oral health findings from the oral health screening component of the program. It is important to state that any child who has been identified as having a need for dental care is provided with information to be shared with their parent or guardian about the problem, how soon the need should be addressed, and a list of dentists or dental clinics in their area that can assist them.

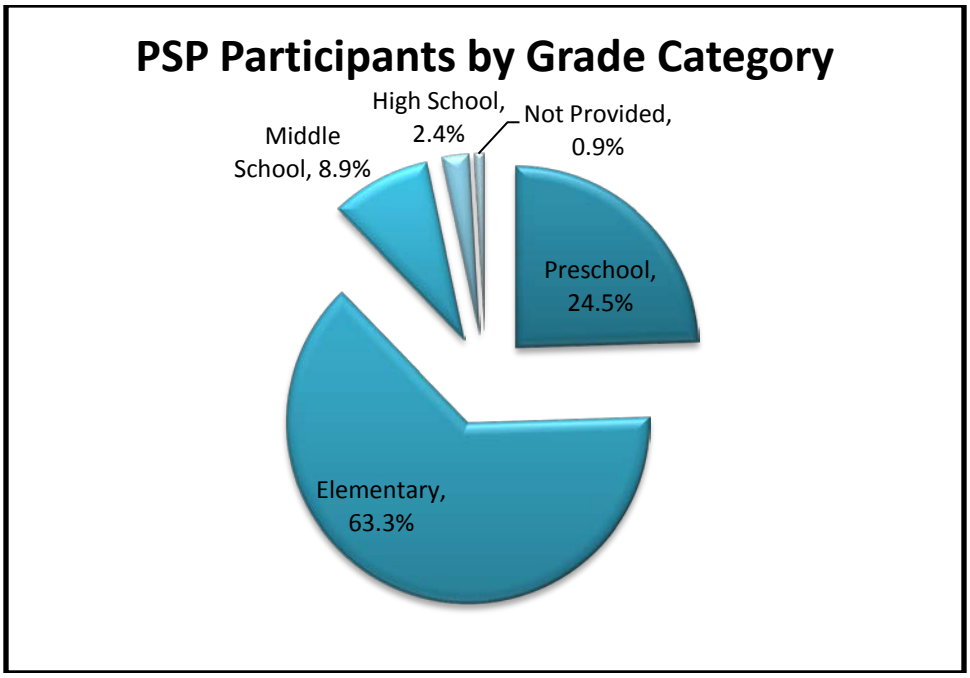
Overview

In the 2012-2013 school year, 72,088 children were served by the PSP. This is the highest number ever reached in the history of the program, which began in 2006. The number served in the 2012-2013 school year was an 11% increase over the previous year's total. This report presents summary findings from 69,300 screening forms that were returned with data complete enough for analysis from the 2012-2013 school year.

About equal numbers of males and females were served by the PSP in the 2012-2013 school year. The majority of participants were five to twelve years old while about 10% were younger than five years of age. The smallest age group reached was teenagers (13 years and older).

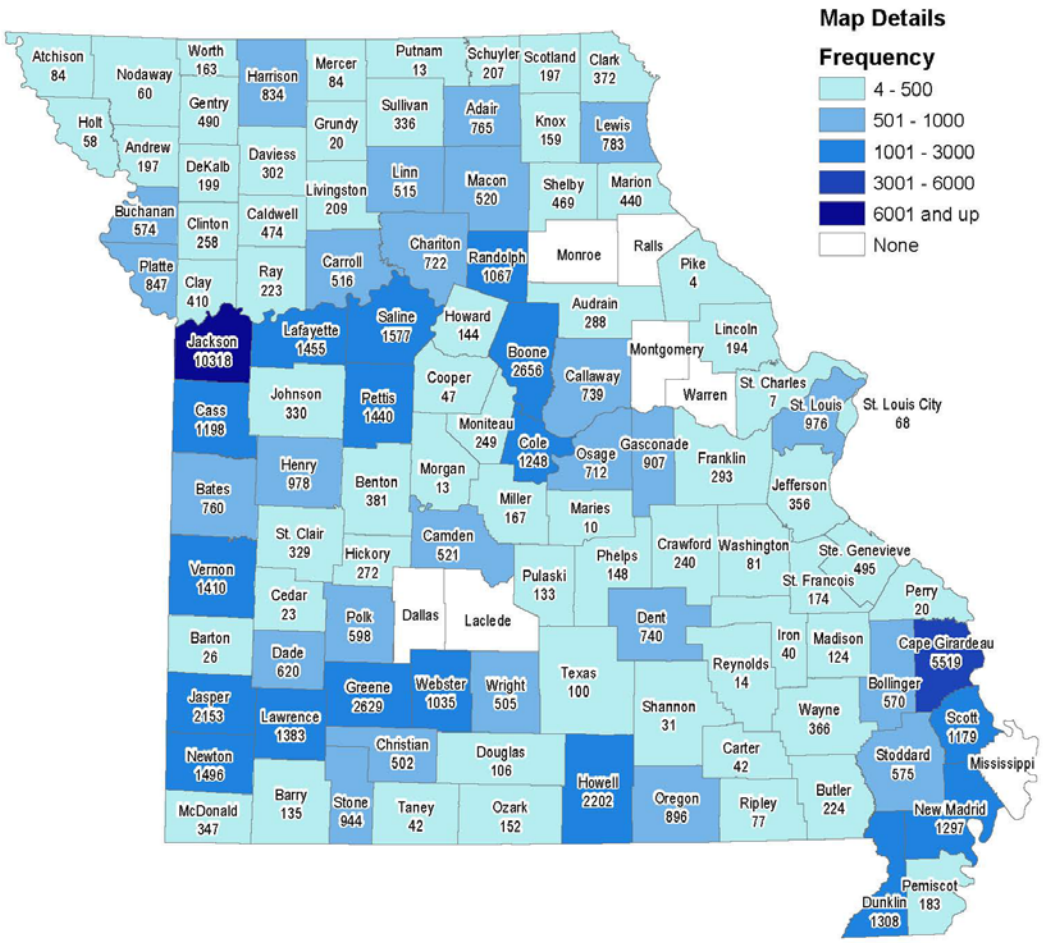
PSP Participants by Gender and Age Group			
Age Group	**Female**	**Male**	**Total**
Under 5	3,309	3,262	6,571
5 to 12 Years Old	29,280	30,142	59,422
13 and Older	1,589	1,718	3,307
All Ages	34,178	35,122	69,300

Grade level is recorded because most PSP events take place in schools. Grade level categories consist of preschool (which includes preschoolers, kindergarteners, and Head Start students), elementary school (first through fifth graders), middle school (sixth through eighth graders), and high school (grades nine through twelve). The PSP reaches the most children in the elementary school category, with nearly two-thirds of all participants in first through fifth grades. The second most common grade category is preschool with middle and high school students making up the least common categories. This is paralleled by the age group data reported above.

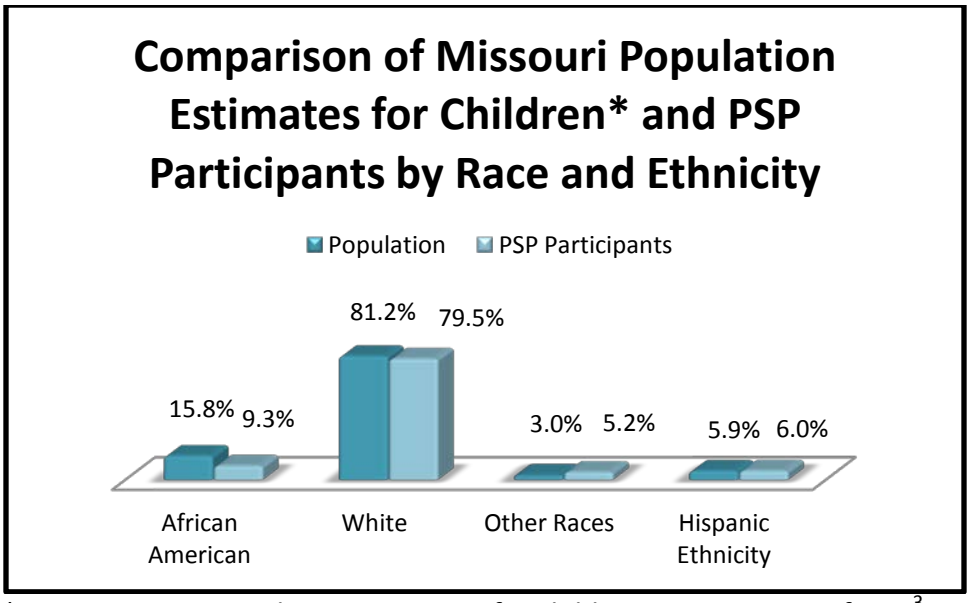


The PSP is a purely voluntary program, so PSP events only occur in communities where school nurses, dental professionals, and volunteers can come together for the cause. For this reason, the distribution of PSP participants varies greatly by geography (see Map). In the 2012-2013 school year, however, only seven counties did not have any PSP participants.

Preventive Services Program Participants by County
2012-2013 School Year



Due to the voluntary nature of the PSP program and differences in the distribution of different racial and ethnic groups in Missouri, it is important to examine how PSP participants compare to Missouri's overall population. When 2011 population estimates for all Missouri children (ages 0 to 17 years of age)[3] are compared to PSP participants, there are similar proportions of children of white race and Hispanic ethnicity in PSP and in the general population. A slightly higher percentage of children of all other races (including Asians, Pacific Islanders, American Indians, and those identified as more than one race) participated in PSP than in the population at large. However, only about 9% of participants were African American while in Missouri as a whole nearly 16% of children are African American. This could be because of limitations with recording race and ethnicity during the PSP screening event (especially where young children may not be able to assist with reporting their race) or because PSP participating communities have different demographics than Missouri as a whole. It is possible that communities with a larger African American population may already have oral health education and prevention programs in place, which makes PSP events less attractive to school nurses and other organizers. PSP is still actively recruiting communities that have not expressed interest in the past in an attempt to serve children that other programs are not able to reach.



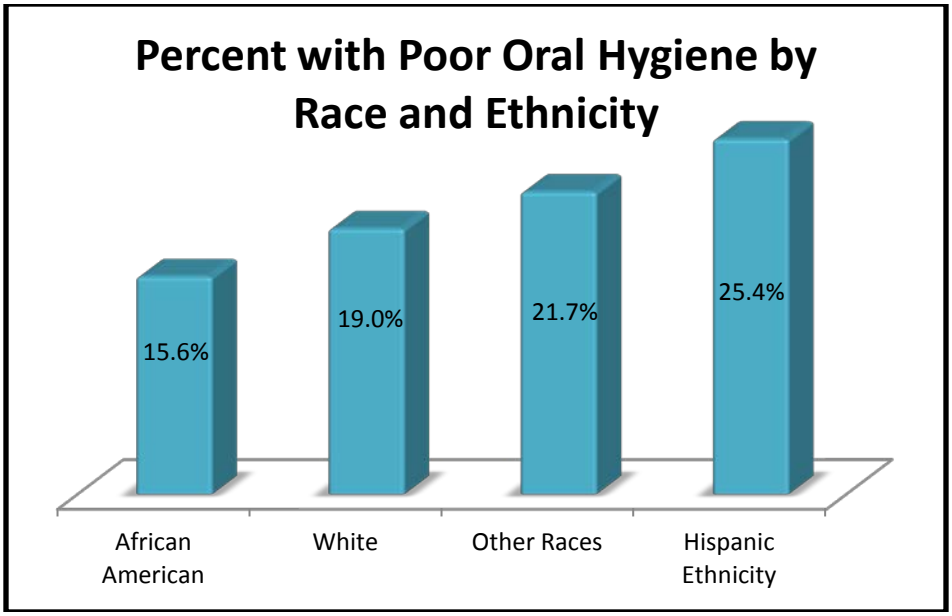
*2011 Missouri population estimates for children 0 to 17 years of age.[3]

Poor Oral Hygiene

Among the 69,300 PSP participants included in this report, poor oral hygiene was observed in 19.2% of those screened. Poor oral hygiene was observed more often in males than females and in those over 5 years of age. The highest percentage was among teenage males.

Percent with Poor Oral Hygiene by Gender and Age Group			
Age Group	**Female**	**Male**	**Total**
Under 5	10.2%	11.0%	10.6%
5 to 12 Years Old	18.3%	21.9%	20.2%
13 and Older	16.2%	23.6%	20.0%
All Ages	17.4%	21.0%	19.2%

Poor oral hygiene was observed most frequently among individuals with Hispanic ethnicity, followed by other races and whites. Poor oral hygiene was reported least frequently among African American children.



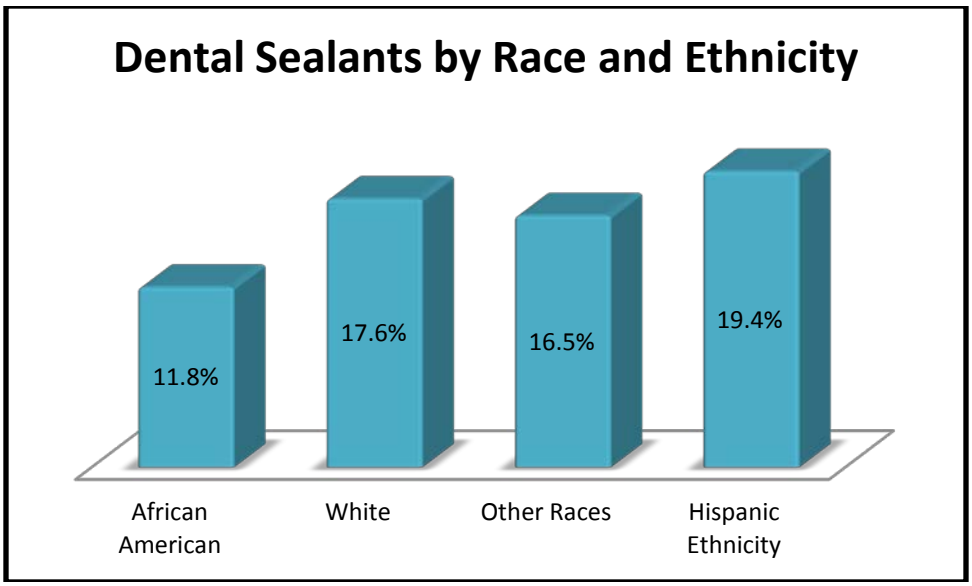
Dental Sealants

Dental sealants are clear plastic coatings applied to the chewing surfaces of permanent molars to prevent cavities. Ideally, dental sealants are placed as soon as possible after the permanent molars erupt. Children are usually around seven when their first permanent molar erupts and around ten when their second permanent molar erupts.

Overall, in the 2012-2013 school year, about 17% of children were identified as having dental sealants. The proportions were about equal in males and females. A very low percentage of children under age five were identified as having dental sealants, which is expected because sealants are typically placed on permanent molar teeth. About 18% of children between 5 and 12 years old had dental sealants and 23% of children 13 and older had dental sealants.

Percent with Dental Sealants by Gender and Age Group			
Age Group	**Females**	**Males**	**Total**
Under 5	1.0%	1.2%	1.2%
5 to 12 Years Old	19.7%	17.4%	18.5%
13 and Older	22.5%	23.5%	23.0%
All Ages	18.0%	16.2%	17.1%

When the percent of children identified as having dental sealants are examined by race and ethnicity, African Americans had the lowest percentage of dental sealants of any group. Hispanic children were the most likely to have dental sealants.

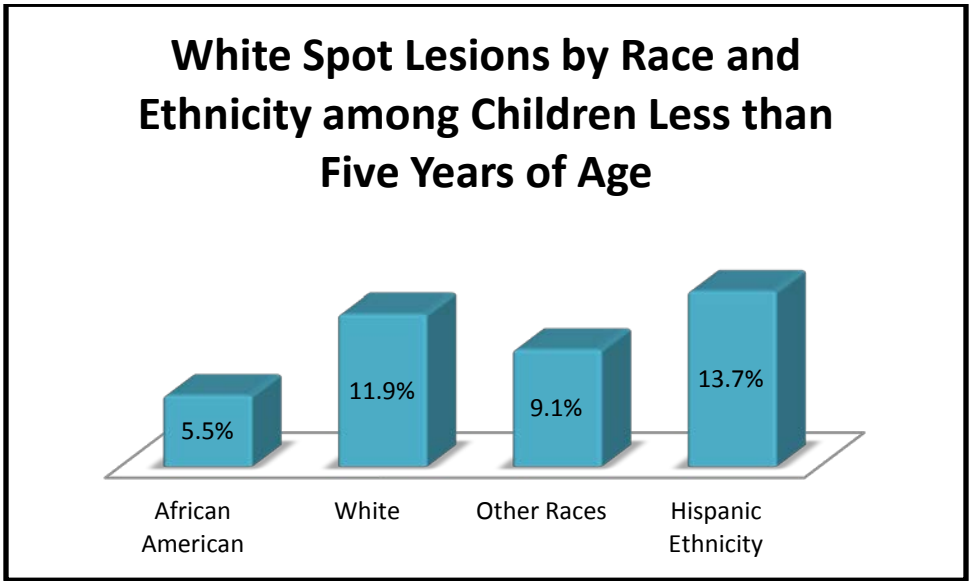


White Spot Lesions

White spot lesions are the first sign of tooth decay that can be visualized. PSP specifies that screeners look for white spot lesions on only primary (baby) teeth, so data are reported only for children less than five years old. White spot lesions were observed in 10.4% of all 0 to 4 year-olds, and the percentage was slightly higher in males than females.

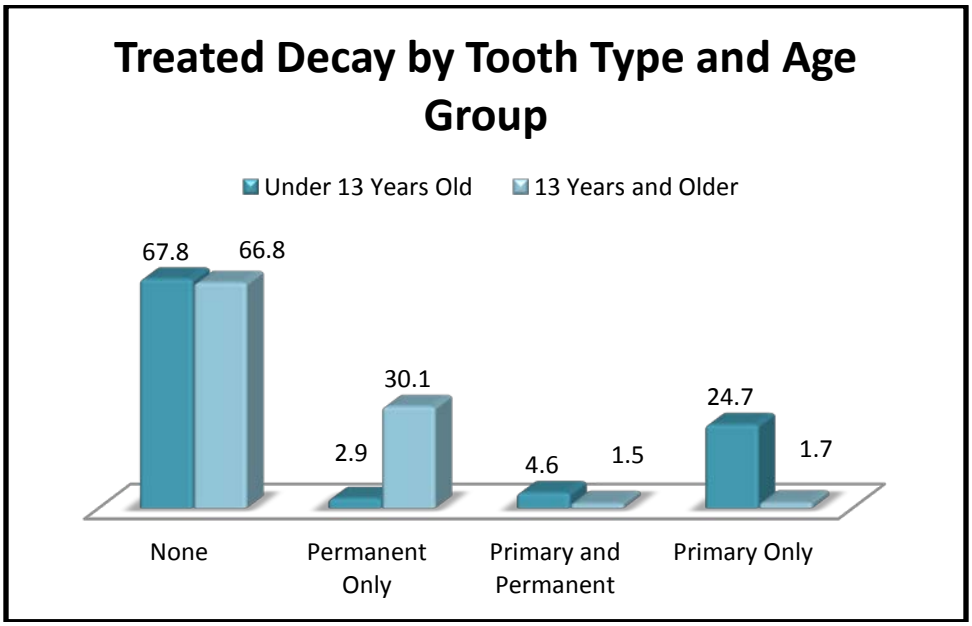
Percent with White Spot Lesions by Gender among Children Less than Five Years of Age		
Females	**Males**	**Total**
10.2%	10.6%	10.4%

African Americans had the lowest percentage of white spot lesions of any race or ethnic group observed. The percentage of Hispanic and white children with white spot lesions was about two times greater than the percent observed in African Americans.

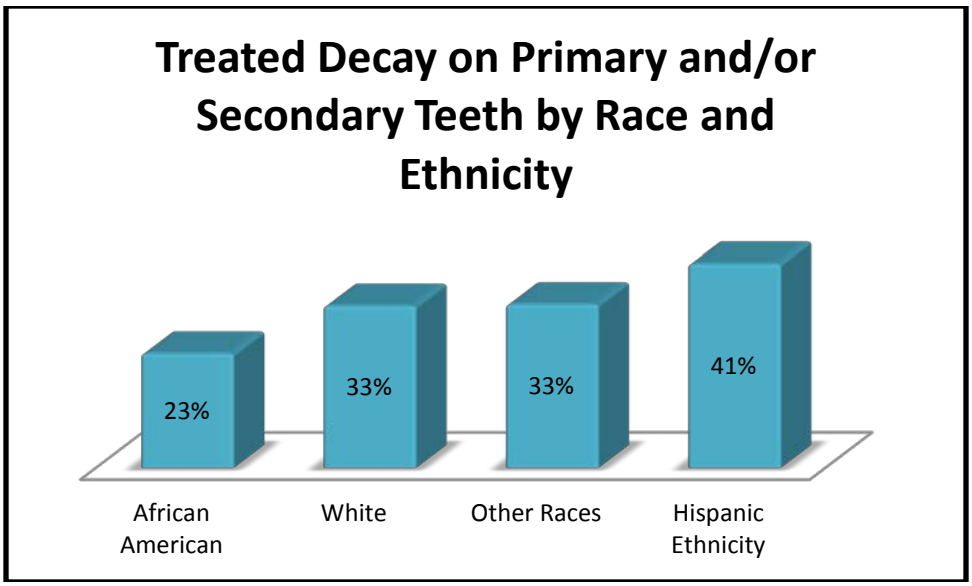


Treated Decay

Evidence of treated decay on primary and permanent teeth was recorded during the screening. These results are reported for two age groups because most children have lost their primary teeth and have most of their permanent teeth by age thirteen. Similar proportions of children in the older and younger age groups were identified as having no evidence of treated decay. As might be expected, most of the treated decay reported among the younger age group was on primary teeth only while most of the treated decay was observed on permanent teeth only among the teenage group. More children under age 13 had some treated decay identified on their permanent teeth and on both permanent and primary teeth than was observed among the older age group.

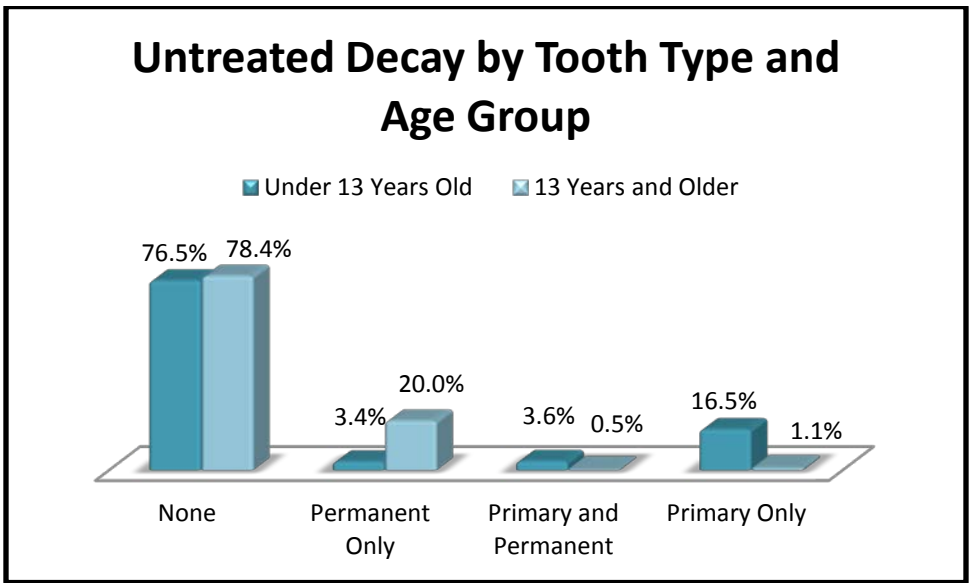


No difference by gender in treated decay was observed. Hispanic children were most likely and African American children were least likely to have evidence of treated decay on primary and/or permanent teeth. About a third of white children and children of other races had evidence of treated decay on their teeth.

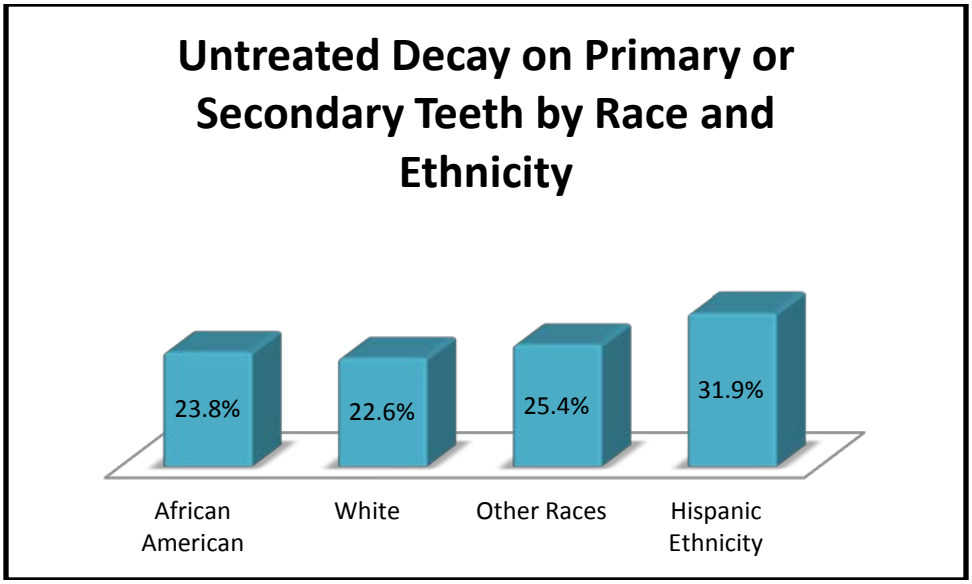


Untreated Decay

Children were also screened for evidence of untreated decay in primary and permanent teeth. Results are reported by age group below. The majority of children in each age group did not have any untreated decay. Among those with untreated decay, the majority of those with untreated decay on permanent teeth were 13 years and older and the majority of those with decay on primary teeth only were less than 13 years of age. Very few children had untreated decay on both permanent and primary teeth.



No difference between males and females was observed for untreated decay. Hispanic children were most likely to have evidence of untreated decay, followed by individuals of other races. White and African American children were least likely to have untreated decay identified during the screening.



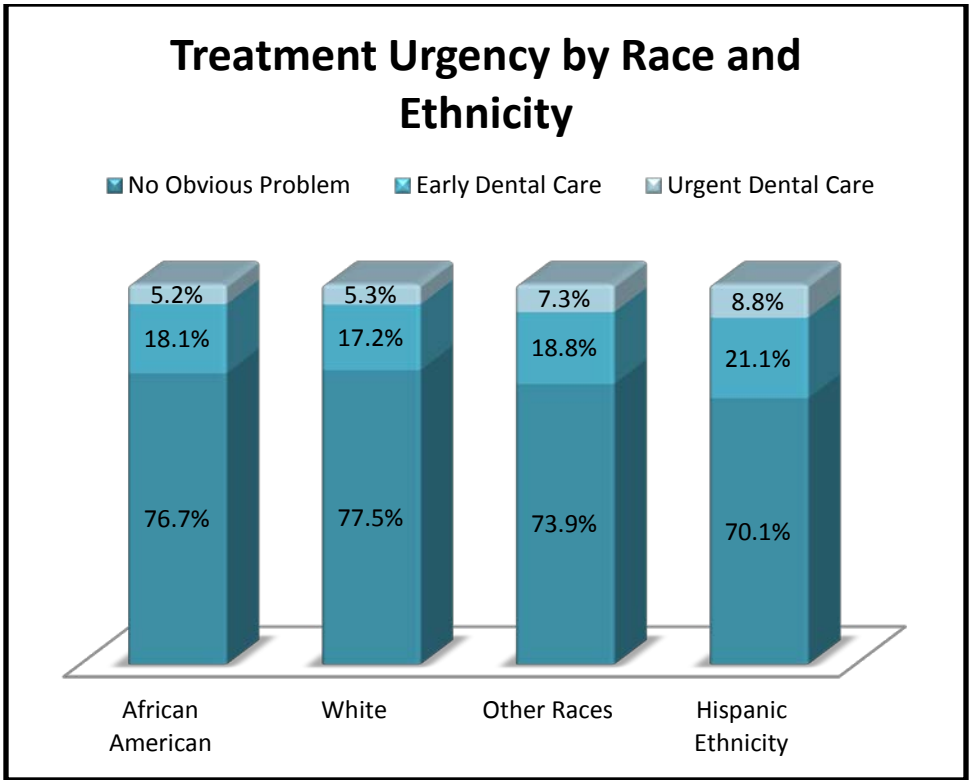
Treatment Urgency

One important service of the PSP is that parents or guardians are informed when a dental issue that needs to be addressed is discovered during the screening. PSP organizers provide referrals for local dental offices or clinics that may be utilized for follow-up care. The need for treatment is categorized in two ways. Early dental care is recommended for injuries or conditions that require the attention of a dental professional in a few months' time. Urgent dental care is recommended to take place within 24 hours because the injury or condition needs immediate attention.

The majority of children of both genders and all age groups did not have any obvious problem that needed early or urgent dental care. Among children 5 to 12 years of age, more males than females were identified as having a problem that needed early dental care. Children less than five years of age had the lowest percentage of urgent dental care needs of any group.

Treatment Urgency by Age Group and Gender						
	No Obvious Problem		Early Dental Care		Urgent Dental Care	
Age Group	Female	Male	Female	Male	Female	Male
Less than 5	82.6%	82.2%	14.9%	15.1%	2.5%	2.5%
5 to 12 Years	77.3%	75.0%	16.9%	18.9%	5.8%	6.2%
13 and Older	78.7%	79.2%	17.1%	17.2%	4.3%	3.6%
All Ages	77.9%	75.8%	16.7%	18.5%	5.4%	5.6%

Children with Hispanic ethnicity and those from the other races group were identified with early and urgent dental care needs the most of any group; African American and white children had the lowest percentages of needing early or urgent dental care.

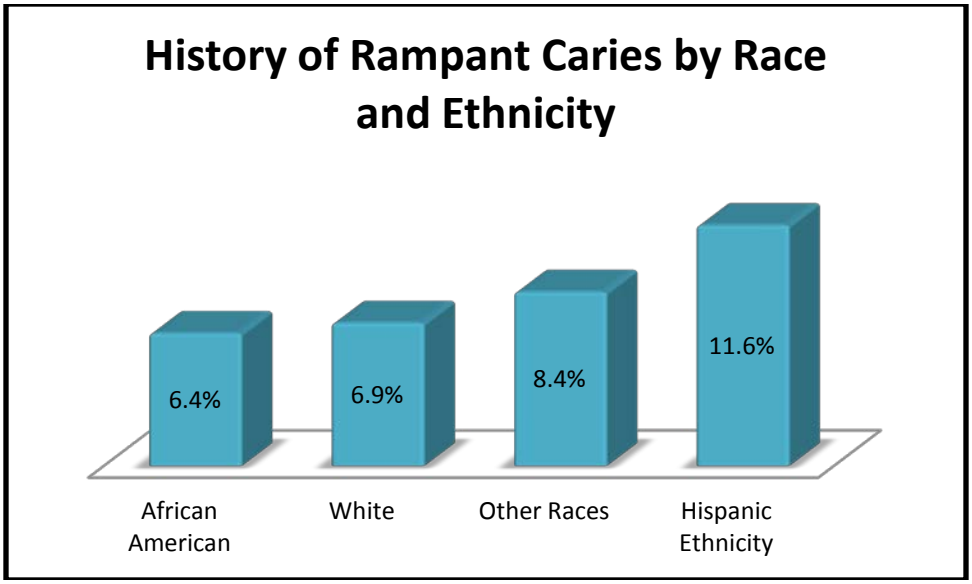


Rampant Caries

Rampant dental caries involve several teeth and can appear suddenly and progress rapidly. Only about 7.2% of children participating in PSP were classified as having a history of rampant caries. The proportion of rampant caries was slightly higher in males than females. The percentage was also higher for those under 13 years of age than the teenage group.

Percent with a History of Rampant Caries by Gender and Age Group			
Age Group	**Females**	**Males**	**Total**
Under 5	6.8%	6.0%	6.4%
5 to 12 Years Old	6.8%	8.3%	7.6%
13 and Older	3.1%	2.6%	2.8%
All Ages	6.6%	7.8%	7.2%

When compared by race and ethnicity, African American and white children had the lowest percentage of a history of rampant caries than children of other races or Hispanic ethnicity. In fact, the percentage of Hispanic children with a history of rampant caries was nearly twice the proportion in African Americans or whites.

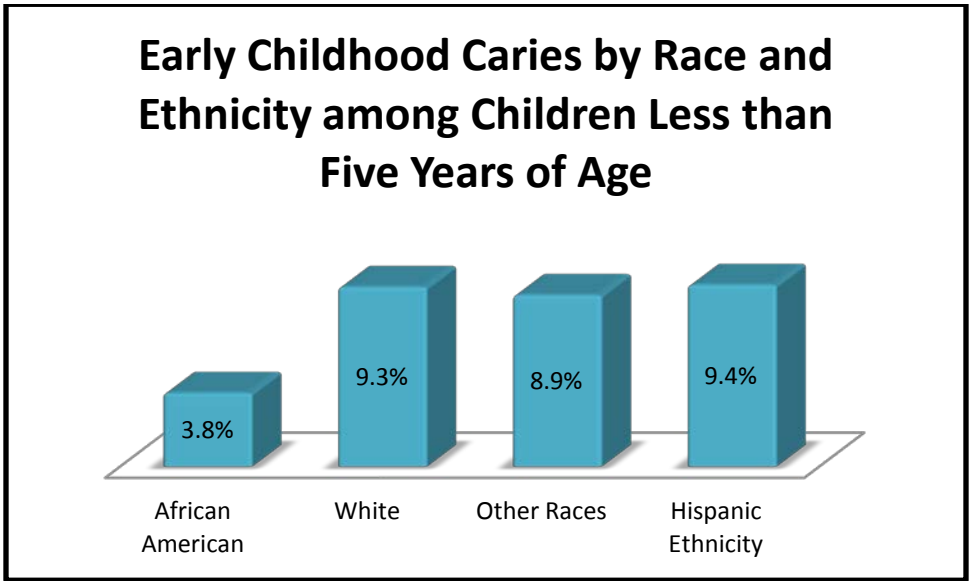


Early Childhood Caries

Early childhood caries, also known as baby bottle caries or baby bottle tooth decay, is a syndrome characterized by severe decay in the teeth of infants and young children caused by a bacterial infection. Evidence of early childhood caries was observed in about 8% of all PSP participants under five years of age. The percentages were higher in females than males.

Percent with a History of Early Childhood Caries by Gender among Children Less than Five Years of Age		
Females	**Males**	**Total**
8.3%	7.7%	8.0%

The lowest percentage of early childhood caries was observed among African American children with rates twice as high or more among white, other races, and Hispanics.



Conclusions

In reviewing data for the 2012-2013 school year, some trends in oral health among PSP participants are visible. Here are some highlights:

Preventive Factors:

- **Poor oral hygiene** was seen in about twenty percent of all children screened, most frequently in teenage males and children of Hispanic ethnicity. African American children were reported with the lowest percentage of poor oral hygiene. The majority of children (80%) had satisfactory oral hygiene.
- **Dental sealants** were visible on 17% of all children in PSP. African American children were the least likely to have dental sealants and Hispanic children were the most likely.

Tooth Decay:

- **White spot lesions** (the earliest sign of tooth decay) were visible in 10.4% of PSP participants less than five years of age. Males were more likely than females to have white spot lesions. African Americans had the lowest percent of white spot lesions; the rate observed among white and Hispanic children was more than double the rate observed in African Americans.
- Evidence of **treated decay** was observed in about a third of all children in PSP. African American children were least likely and Hispanic children were most likely to have treated decay.
- Evidence of **untreated decay** was observed in about a quarter of all children in PSP. African American and white children were least likely and Hispanic children and children of other races were most likely to have untreated decay observed during their screening.
- Overall, about 7% of children had a history of **rampant caries**. As reported for the need for early or urgent dental care, among 5 to 12 year-olds, more males than females had a history of rampant caries. The lowest rates were observed among teenagers of both genders than any other group. African American and white children had the lowest rates; the rate of rampant caries in Hispanic children was twice the rate observed in whites and African Americans.
- **Early childhood caries** (or baby bottle tooth decay) was observed in 8% of children under five years old. The lowest rates were observed among African Americans with whites, other races, and Hispanics having the highest rates.

Treatment Urgency:

- About a quarter of all children in PSP were identified as needing **early or urgent dental care** and were sent home with a notification to their parent or guardian about this finding. More males than females were in need of dental care in the 5 to 12 year-old age group. African American and white children were least likely and Hispanic children were most likely to have a dental problem that needed care.

Recommendations:

- Males appear to have higher rates of poor oral hygiene, white spot lesions, and rampant caries. This is true for the 5 to 12 year-old age group and for teenagers. Oral health messages may need to be tailored for young males to emphasize the importance of oral health.

- Dental sealants are an important measure to prevent dental caries, but were observed in only 17% of PSP children. Improving this percentage among Missouri's children in general would help to improve overall oral health.
- African American children had the lowest rates of many poor oral health outcomes; however, they also had the lowest percentage of dental sealants observed. This may be a focus area for intervention for communities that have the resources for dental sealant programs.
- Although a larger proportion of Hispanic children were identified as having dental sealants, for many poor oral health outcomes, Hispanic children had the highest percentage of any racial or ethnic group observed. The most concerning of these are untreated decay, rampant caries, and need for early or urgent dental care. Communities with Hispanic populations may need to tailor oral health messages to meet the cultural and linguistic needs of parents, guardians, and children of Hispanic ethnicity.

For more information:

- Please contact the Missouri Oral Health Program for more information about PSP and oral health in general at 1-800-891-7415 or visit us at health.mo.gov/oralhealth.
- To learn more about PSP events in your area or to start a new event, please contact one of our five regional Oral Health Consultants (see map, Appendix 1).

References

1. U.S. Department of Health and Human Services, *Oral Health in America: A Report of the Surgeon General,* 2000.
2. U.S. Health Resources Services Administration, Oral Health: Women and Children, 2013. http://www.hrsa.gov/publichealth/clinical/oralhealth/maternalchild.html Accessed October 30, 2013.
3. Missouri Department of Health and Senior Services, Missouri Information for Community Assessment, MICA. http://health.mo.gov/data/mica/MICA Accessed October 31, 2013.

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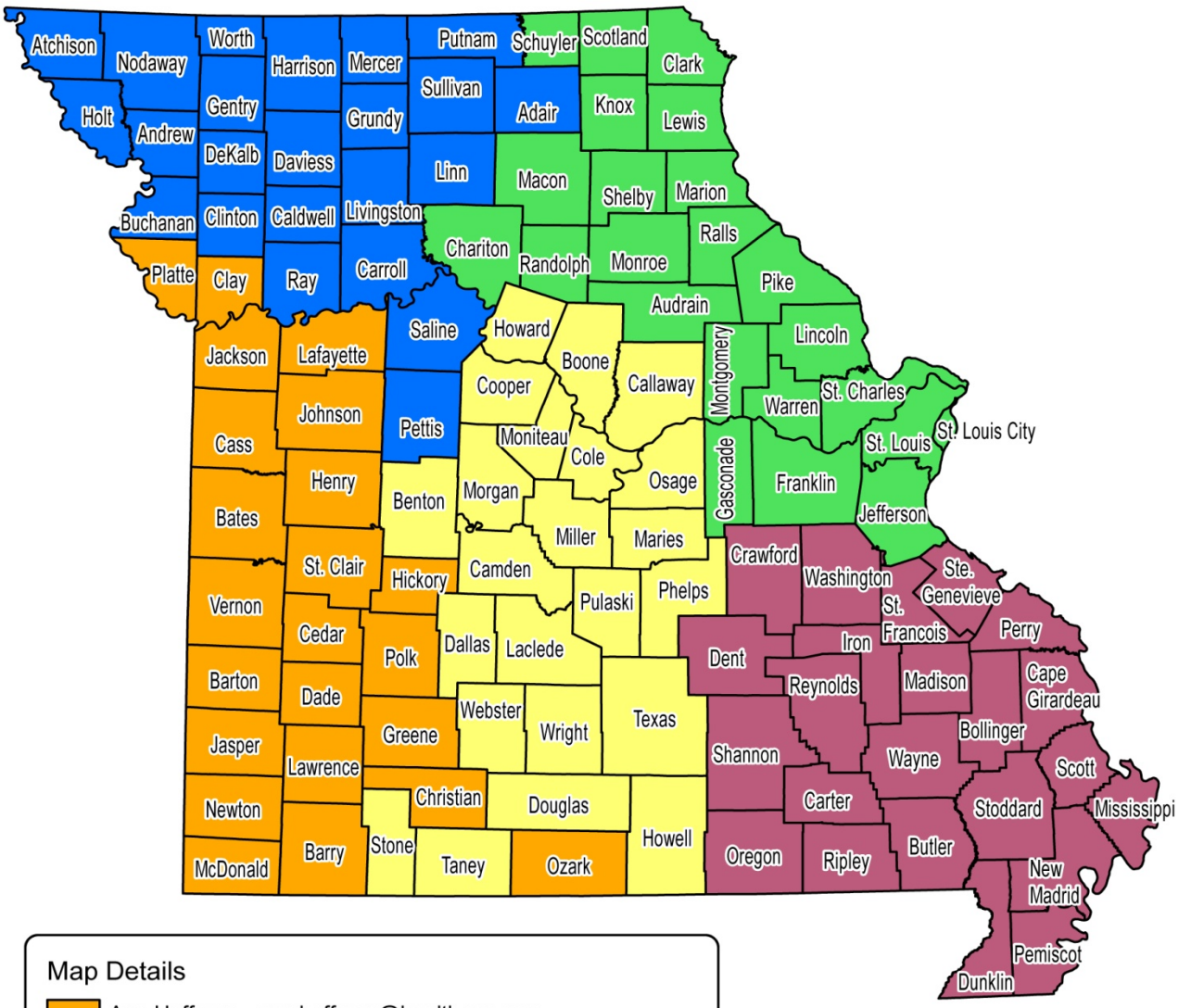
Appendix 1. PSP Oral Health Consultants by Region - 2013



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